In the Claims:

1. (Currently Amended) A corner-pumping method for high power slab laser comprising:

directing a pump light from one or more pump light sources each consisting of a high power diode array and its coupling system into a laser slab through prior cut slab corner faces of said laser slab without restriction to the incident angle or the polarization state of the pump light, wherein said laser slab includes an undoped circumambient portion and one or more doped central portions, and wherein outer surfaces of the slab are planar;

propagating said pump light within said laser slab wherein said pump light firstly pass said undoped circumambient portion, secondly pass said doped central portion, thirdly pass said undoped circumambient portion again, and fourthly take inner reflection at the surface of said undoped circumambient portion, and by repeating these steps, achieve multi-pass absorption; and

substantially absorbing the pump light during propagating.

2. (Original) The method as recited in claim 1, wherein corner faces of said laser slab are coated for high transmission for the wavelength of the pump light, and lateral faces of said slab are coated for high reflection for the wavelength of the pump light.

3. (Previously Presented) The method as recited in claim 1, wherein a laser light propagates inside the laser slab faces in a zigzag optical path.

4. (Previously Presented) The method as recited in claim 1, wherein the step of absorbing achieves a high absorption efficiency through multi-pass absorption of pump light inside said laser slab.

5. (Canceled).

6. (Currently Amended) A corner-pumped laser gain module for high power slab laser comprising:

a laser slab including undoped circumambient portion, one or more doped central portions and corner faces, and wherein outers surface of the slab are planar; and

one or more pump source providing a pump light, each pump source consisting of a high power diode array and its coupling system;

wherein said pump light from said one or more pump sources directly incident into said laser slab through prior cut slab corner faces of said laser slab without restriction to the incident angle or the polarization state of the pump light, firstly pass said undoped circumambient portion, secondly pass said doped central portion, thirdly pass said undoped circumambient portion again, and fourthly take inner reflection at the surface of said undoped circumambient portion, and by repeating these steps, achieve multi-pass absorption, and substantially absorbed by the said doped central portion during propagation; and

wherein said laser slab outputs an amplified laser beam.

7. (Original) The laser gain module as recited in claim 6, wherein the number of said corner faces is four.

8. (Canceled).

9. (Previously Presented) The laser gain module as recited in claim 6, wherein a cross section of said central portion is square or circular.

10. (Original) The laser gain module as recited in claim 6, wherein said corner faces of said laser slab are coated for high transmission for the wavelength of the pump light, and lateral faces of said slab are coated for high reflection for the wavelength of the pump light.

11. (Previously Presented) The laser gain module as recited in claim 6, wherein the input beam and the output beam are located at a same side of said laser slab, said input beam and said output beam forming an angle with each other.

12. (Previously Presented) The laser gain module as recited in claim 11, wherein two mirrors are placed at a side of the said laser slab other than the side where the input and output beams are located, the two mirrors placed symmetrically with respect of said input beam and said output beam.

13. (Previously Presented) The laser gain module as recited in claim 6, wherein said coupling system including two cylindrical lenses and a lens duct, said two cylindrical lenses being placed between the diode array and the lens duct, generatrices of said two cylindrical lenses are orthogonal to each other and are parallel to fast axis and slow axis of said diode array, respectively.

14. (Previously Presented) The laser gain module as recited in claim 6, wherein said coupling system being a fiber bundle.

15. – 18. (Canceled).